

New genera and species of Leptopsaltriini (Hemiptera: Cicadidae: Cicadinae) from India and Tibet, with the descriptions of five new subtribes

Young June LEE

Department of Ecology and Evolutionary Biology,
University of Connecticut,
75 North Eagleville Road, Storrs, Connecticut 06269 (USA)
cicaderolee@gmail.com

David EMERY

Faculty of Veterinary Science, McMaster Building B14,
University of Sydney, Sydney, NSW. 2006 (Australia)

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ABSTRACT

Three new cicada genera and species, *Mosaica irregularis* n. gen., n. sp., *Masamia huweii* n. gen., n. sp., and *Manna tenuis* n. gen., n. sp., are described from India and Tibet. Six subtribes, Puranina Lee, n. subtr., Leptopsaltriina Moulton, 1923, Mosaicina Lee, n. subtr. which include the three new genera, Gudabina Lee, n. subtr., Euterpnosiina Lee, n. subtr., and Leptosemiina Lee, n. subtr., are placed in Leptopsaltriini Moulton, 1923 of the subfamily Cicadinae Latreille, 1802.

KEY WORDS

Leptopsaltriina,
new subtribes,
new genera,
new species.

RÉSUMÉ

Genres et espèces nouveaux de Leptopsaltriini (Hemiptera: Cicadidae: Cicadinae) de l'Inde et du Tibet, avec la description de cinq nouvelles sous-tribus.

Trois nouveaux genres et espèces de cigales, *Mosaica irregularis* n. gen., n. sp., *Masamia huweii* n. gen., n. sp., et *Manna tenuis* n. gen., n. sp., sont décrits à partir de l'Inde et du Tibet. Six sous-tribus, Puranina Lee, n. subtr., Leptopsaltriina Moulton, 1923, Mosaicina Lee, n. subtr. qui inclut les trois nouveaux genres, Gudabina Lee, n. subtr., Euterpnosiina Lee, n. subtr., et Leptosemiina Lee, n. subtr., sont placées dans Leptopsaltriini Moulton, 1923 dans la sous-famille Cicadinae Latreille, 1802.

MOTS CLÉS

Leptopsaltriina,
nouvelles sous-tribue,
nouveaux genres,
nouvelles espèces.

INTRODUCTION

In their phylogenetic study of cicadas, Lee & Hill (2010) placed 14 genera in the subtribe Leptopsaltriina Moulton, 1923, such as *Purana* Distant, 1905, *Maua* Distant, 1905, *Formosemia* Matsumura, 1917, *Leptopsaltria* Stål, 1866, *Tanna* Distant, 1905, *Nabalua* Moulton, 1923, *Taiwanosemia* Matsumura, 1917, *Gudaba* Distant, 1906, *Euterpnosia* Matsumura, 1917, *Calcagninus* Distant, 1892, *Neocicada* Kato, 1932, *Leptosemia* Matsumura, 1917, *Puranoides* Moulton, 1917, and *Terpnosia* Distant, 1892, also suggesting two other genera as possible members of the subtribe, *Inthaxara* Distant, 1913 and *Formocicada* Lee & Hayashi, 2004.

Later, Lee (2012a) redefined *Terpnosia* and moved this genus into the subtribe Psithyristriina Distant, 1905. By that study, *Yezoterpnosia* Matsumura, 1917 was resurrected from junior synonymy with *Terpnosia* and was placed in Leptopsaltriina, to include six species formerly placed in *Terpnosia*. Lee (2012b; 2013) described *Paratanna* Lee, 2012 and *Miniterpnosia* Lee, 2013, respectively, and placed them in Leptopsaltriina. Additionally, *Qurana* Lee, 2009, *Rustia* Stål, 1866, and *Minipomponia* Boulard, 2008 are thought to belong to Leptopsaltriina, the classification of which is discussed in later part of this paper.

Leptopsaltriina has been treated as one of the subtribes within the tribe Cicadini Latreille, 1802 of the subfamily Cicadinae Latreille, 1802 since Lee & Hill (2010). However, Leptopsaltriina should be treated as a tribe, Leptopsaltriini Moulton, 1923, which includes as many as six subtribes as discussed below.

Five different taxonomic groups are currently recognized for the known genera within Leptopsaltriini: the *Purana*-like group, the *Tanna*-like group, the *Gudaba*-like group, the *Euterpnosia*-like group, and the *Leptosemia*-like group. The *Purana*-like group has the following common characters: timbal cover well developed; male abdominal sternites III and IV with projection on each posterolateral surface; uncus not bifurcate (with a few exceptions); aedeagus thin; basal lobe of pygofer distinct. The *Tanna*-like group has the following common characters: timbal cover well developed; male abdominal sternite III (and sometimes sternite IV) with tubercle-like projection on each posterolateral surface; uncus

not bifurcate; aedeagus thick; basal lobe of pygofer absent. The *Gudaba*-like group has the following common characters: hind wing with five apical cells (with six apical cells in other groups); timbal cover minute; male abdominal sternites III and IV with projection on each posterolateral surface. The *Euterpnosia*-like group has the following characters: timbal cover minute; male abdominal sternites without projections (but not in *Calcagninus*); uncus not bifurcate; aedeagus thin; basal lobe of pygofer present (but not in *Yezoterpnosia*). The *Leptosemia*-like group has the following characters: timbal cover well developed; male abdominal sternites without projections; uncus not bifurcate; aedeagus thick; basal lobe of pygofer absent.

Names are proposed to these respective groups: Puranina Lee, n. subtr., Leptopsaltriina Moulton, 1923, Gudabina Lee, n. subtr., Euterpnosiina Lee, n. subtr., and Leptosemiina Lee, n. subtr. Puranina Lee, n. subtr. includes *Qurana*, *Purana*, *Maua*, *Formosemia*, and *Paratanna*. Leptopsaltriina includes *Leptopsaltria*, *Tanna*, *Nabalua*, *Taiwanosemia*, *Inthaxara*, and *Formocicada*. Gudabina Lee, n. subtr. includes *Rustia* and *Gudaba*. Euterpnosiina Lee, n. subtr. includes *Euterpnosia*, *Miniterpnosia*, *Calcagninus*, and *Yezoterpnosia*. Leptosemiina n. subtr. includes *Neocicada*, *Leptosemia*, *Minipomponia*, and *Puranoides*.

Also, in the present paper, three new cicada species are described from India and Tibet, which were found in the private collections of the second author. These three new species appear closely allied to the species of the genus *Tanna* (type species: *Pomponia japonensis* Distant, 1892 from Japan), but they cannot be placed in *Tanna* or its related genera because of their unique morphology as discussed below.

Three new genera are described here to include these respective new species. These new genera are also placed in Leptopsaltriini, but they do not belong to any of the above five subtribes but to a new group because the new genera have the following characters: male timbal cover minute; male abdominal sternite III (but not sternite IV) with tubercle-like projection on each centrolateral surface; uncus not bifurcate; aedeagus thick; basal lobe of pygofer absent. This new group is closest to Leptopsaltriina (the *Tanna*-like group) but is different because of the minute timbal cover. The

sixth subtribe Mosaicina Lee, n. subtr. is erected for this group within Leptopsaltriini.

MATERIAL AND METHODS

Terminology for morphological features follows that of Moulds (2005). The digital images of the male genitalia were captured using a Leica stereozoom microscope attached to a computer-assisted imaging system, Auto-Montage by Syncroscopy (Cambridge, UK), at the collection facility of the University of Connecticut. Morphological measurements were made with vernier calipers in mm.

The holotypes of the three new species are deposited in the Muséum national d'Histoire naturelle, Paris. The paratypes are deposited in the Australian Museum, Sydney.

ABBREVIATIONS

| | |
|-----------|--------------------------|
| CuA vein | Cubitus anterior vein; |
| CuA1 vein | Cubitus anterior 1 vein; |
| CuA2 vein | Cubitus anterior 2 vein; |
| M vein | Median vein; |
| M1+2 vein | Median 1+2 vein; |
| M3+4 vein | Median 3+4 vein; |
| RA2 vein | Radius anterior 2 vein; |
| RP vein | Radius posterior vein. |

SYSTEMATICS

Subfamily CICADINAE Latreille, 1802

Tribe LEPTOPSALTRIINI Moulton, 1923

DIAGNOSIS. — Head including eyes about as wide as or narrower than mesonotum. Posterior pronotal collar very narrow. Wings hyaline. Male operculum small, scale-like. Male abdominal sternite III (and sometimes sternite IV) with tubercle-like projection on each lateral surface in many genera (no record of this character outside of this tribe). Male abdominal sternite VII distinctly separated from tergite 7 by folding.

Subtribe PURANINA Lee, n. subtr.

TYPE GENUS. — *Purana* Distant, 1905, by present designation.

DIAGNOSIS. — Head including eyes about as wide as mesonotum. Lateral pronotal collar dentate. Fore wing with marginal areas narrow. Male operculum small, scale-like. Timbal cover well developed. Male abdominal sternites III and IV with tubercle-like projection on each posterolateral surface. Uncus not bifurcate (with a few exceptions). Aedeagus thin. Basal lobe of pygofer distinct.

INCLUDED GENUS. — *Qurana*, *Purana*, *Maui*, *Formosemia*, and *Paratanna*.

Subtribe LEPTOPSALTRIINA Moulton, 1923

TYPE GENUS. — *Leptopsaltria* Stål, 1866, by present designation.

DIAGNOSIS. — Head including eyes about as wide as mesonotum. Lateral pronotal collar not dentate. Fore wing with marginal areas narrow or normal. Male operculum small, scale-like. Timbal cover well developed. Male abdominal sternite III (and sometimes sternite IV) with tubercle-like projection on each posterolateral surface. Uncus not bifurcate. Aedeagus thick. Basal lobe of pygofer absent.

INCLUDED GENUS. — *Leptopsaltria*, *Tanna*, *Nabalua*, *Taiwanosemia*, *Inthaxara*, and *Formocicada*.

Subtribe GUDABINA Lee, n. subtr.

TYPE GENUS. — *Gudaba* Distant, 1906, by present designation.

DIAGNOSIS. — Head including eyes about as wide as mesonotum. Lateral pronotal collar not dentate. Fore wing with marginal areas extremely narrow. Hind wing with five apical cells (with six apical cells in other groups). Male operculum small, scale-like. Timbal cover minute. Male abdominal sternites III and IV with projection on each posterolateral surface.

INCLUDED GENUS. — *Rustia* and *Gudaba*.

REMARKS. — The name *Gudabina* used by Boulard (2008) is nomen nudum by Articles 13.1, 16.1, and 16.2 of the International Code of Zoological Nomenclature.

Subtribe EUTERPNOSIINA Lee, n. subtr.

TYPE GENUS. — *Euterpnosia* Matsumura, 1917, by present designation.

DIAGNOSIS. — Head including eyes about as wide as or slightly narrower than mesonotum. Lateral pronotal collar not dentate (but dentate in *Yezoterpnosia*). Posterior pronotal collar very narrow (but not so narrow in *Yezoterpnosia*). Fore wing with marginal areas narrow or normal. Male operculum small, scale-like. Timbal cover minute. Male abdominal sternites without tubercle-like projections (but present in *Calcagninus*). Uncus not bifurcate. Aedeagus thin. Basal lobe of pygofer present (but not in *Yezoterpnosia*).

INCLUDED GENUS. — *Euterpnosia*, *Miniterpnosia*, *Calcagninus*, and *Yezoterpnosia*.

REMARKS. — *Yezoterpnosia* might belong to another independent subtribe with a few exceptional characters as indicated above, but the present paper refrains from erecting a new subtribe for this single genus, waiting for a further study.

Subtribe LEPTOSEMIINA Lee, n. subtr.

TYPE GENUS. — *Leptosemia* Matsumura, 1917, by present designation.

DIAGNOSIS. — Head including eyes about as wide as mesonotum. Lateral pronotal collar not dentate. Fore wing with marginal areas narrow or normal. Male operculum small, scale-like. Timbal cover well developed. Male abdominal sternites without tubercle-like projections. Uncus not bifurcate. Aedeagus thick. Basal lobe of pygofer absent.

INCLUDED GENUS. — *Neocicada*, *Leptosemia*, *Minipomponia*, and *Puranoides*.

REMARKS. — The name *Minipomponiina* used by Boulard (2008) is nomen nudum by Articles 13.1, 16.1, and 16.2 of the International Code of Zoological Nomenclature. The oldest genus is used for the name of this subtribe, and thus *Minipomponiina* is being replaced but is synonymous with the *Leptosemiina*.

Subtribe MOSAICINA Lee, n. subtr.

TYPE GENUS. — *Mosaica* n. gen., by present designation.

DIAGNOSIS. — Head including eyes narrower than mesonotum. Lateral pronotal collar not dentate. Posterior pronotal collar very narrow. Fore wing with marginal areas extremely narrow. Male operculum very small, scale-like. Timbal cover minute. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Male abdominal sternite VII distinctly separated from tergite 7 by folding. Uncus not bifurcate. Aedeagus thick. Basal lobe of pygofer absent.

Mosaica n. gen.

TYPE SPECIES. — *Mosaica irregularis* n. sp., by present designation.

ETYMOLOGY. — The generic name is the Latin feminine noun *mosaica* in reference to the mosaic-like wing venation of the type species of this genus, which has additional wing cells by partitioning or malformation of the fore wing ulnar and apical cells.

DIAGNOSIS. — Fore wing ulnar cells apically and apical cells proximally partitioned to form additional cells. Length between bifurcation point into median (M) vein and median 1+2 (M1+2) vein and bifurcation point into M vein and median 3+4 (M3+4) vein of fore wing distinctly less than twice the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line indistinct or absent on fore wing ulnar cell 3 and medial cell. Hind wing without infuscation along bases of apical cells 1, 2, and 3. Posterior margin of male abdominal tergite 3 much wider than mesonotum.

DESCRIPTION

Head including eyes narrower than mesonotum. Inner area of pronotum concolorous with pronotal collar. Lateral pronotal collar not dentate. Posterior pronotal collar very narrow. Wings hyaline, with many infuscations on fore wing. Fore wing ulnar cells apically and apical cells proximally partitioned to form additional cells. Length between bifurcation point into M vein and M1+2 vein and bifurcation point into M vein and M3+4 vein of fore wing distinctly less than twice the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line indistinct or absent on fore wing ulnar cell 3 and medial cell. Hind wing without infuscation along bases of apical cells 1, 2, and 3. Male operculum very small, about as long as wide, scarcely extending beyond posterior margin of sternite II. Male abdomen cylindrical, much longer than head and thorax together. Posterior margin of male abdominal tergite 3 much wider than mesonotum. Timbal cover very short, much wider than long. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Male pygofer long, elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, short. Basal lobes of pygofer absent. Aedeagus thick.

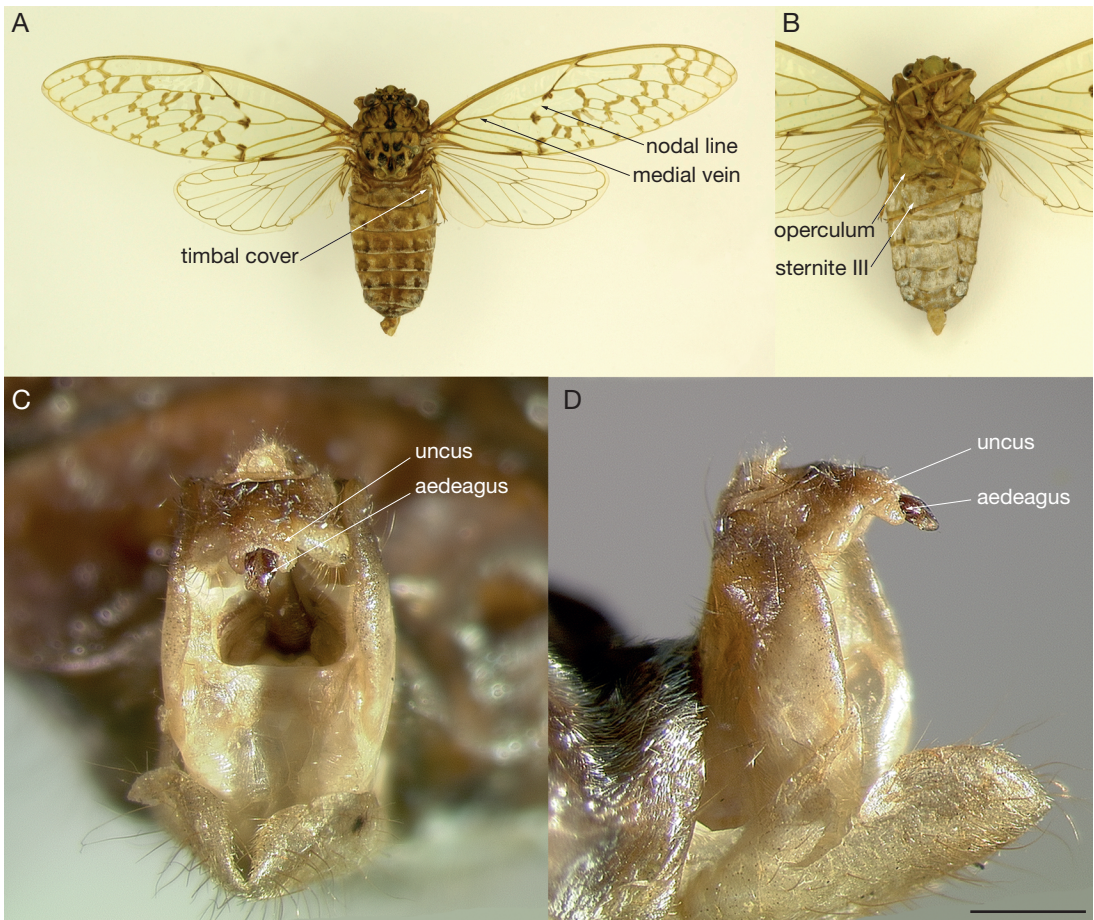


FIG. 1. — *Mosaica irregularis* n. gen., n. sp., holotype, male, India: **A**, dorsal habitus, body length, 35.5 mm; **B**, ventral habitus, body length, 35.5 mm; **C**, ventral view of the pygofer; **D**, lateral view of the pygofer. Scale bar: C, D, 1 mm.

Mosaica irregularis n. sp.
(Fig. 1)

TYPE MATERIAL. — **Holotype**: 1 ♂, "INDIEN Arunachal Pradesh Dist. Along Near Rapum 06.-12.07.2010-2000Hm. N.28.53.176°/ E.094.24.941° leg. „Bretschneider" (printed white label).

ETYMOLOGY. — The specific name refers to the irregularity in the fore wing venation of this species.

MEASUREMENTS (N = 1 MALE). — Median length of body: 35.5. Median length of head and thorax together: 13.3. Median length of abdomen: 22.2. Width of head including eyes: 7.6. Width of mesonotum: 8.8. Width of posterior margin of abdominal tergite 3: 11.9. Length

of fore wing: 43.9. Width of fore wing: 13.4. Wing span: 96.9.

DESCRIPTION OF MALE

Head

Head including eyes narrower than mesonotum; greenish ochraceous with the following marks: three black spots enclosing each ocellus, fused at center, not reaching frontoclypeal suture or posterior margin of head; three longitudinally arranged pairs of fuscous spots between the three fused spots and eye, of which lowest pair are largest. Gena greenish ochraceous without mark. Postclypeus moderately swollen; light green with indistinctly

fuscous fasciae along anterior five or six transverse grooves. Anteclypeus ochraceous without distinct marks. Rostrum ochraceous, but black apically; with tip reaching or passing posterior margin of sternite I.

Thorax

Thorax ochraceous. Inner area of pronotum with a pair of central longitudinal black fasciae, with their anterior ends widened laterad, and black to fuscous irregular marks widespread over inner area. Pronotal collar very narrowly margined with brown to fuscous fascia and with a pair of indistinctly fuscous postero-sublateral patches. Lateral pronotal collar not dentate but waved. Mesonotum with the following black to fuscous marks: longitudinal median fascia extending posteriad to reach anterior margin of cruciform elevation, of which anterior half indistinct; large spot on posterior half of each submedian sigilla; irregular and indistinct spots on each lateral sigilla; a pair of large spots broadly enclosing scutal depressions; a pair of larger spots on posterolateral corners of mesonotum. Cruciform elevation greenish ochraceous with anterior subapical parts black. Thoracic sternites ochraceous without marks.

Wings

Wings hyaline and tinged with green. Fore wing with infuscation irregularly on every cell, including small infuscation present on each hind margin of radius posterior (RP), median, and cubitus anterior (CuA) veins. Venation brown basally and light green distally. Basal membrane and hind wing jugum light grayish ochraceous.

Operculum

Operculum ochraceous; about as long as wide, nearly rectangular with edges rounded, but lateral side elongated anteriorly; scarcely extending beyond posterior margin of sternite II. Two opercula apart from each other, with gap of about width of operculum. Meracanthus ochraceous.

Abdomen

Abdomen cylindrical, about 1.67 times ($n = 1$) as long as head and thorax together; brown without

distinct marks except for fuscous posterior margin of tergite 2. Posterior margin of tergite 3 much wider than mesonotum. Timbal cover very short, semi-oval, much wider than long, revealing timbal in dorsal view. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Abdominal sternites ochraceous, densely covered with white pollinosity.

Genitalia

Pygofer long, elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, short, standing at about 60 degree to pygofer in lateral view. Basal lobes of pygofer absent. Aedeagus thick, with lower end partly expanded.

Masamia n. gen.

TYPE SPECIES. — *Masamia huweii* n. sp., by present designation.

ETYMOLOGY. — The new genus is dedicated to Dr Masami Hayashi in acknowledgment of his considerable contributions to cicada taxonomy.

DIAGNOSIS. — Fore wing ulnar cells and apical cells not partitioned. Length between bifurcation point into M vein and M1+2 vein and bifurcation point into M vein and M3+4 vein of fore wing less than twice the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line viewable on fore wing ulnar cell 3 and medial cell. Hind wing without infuscation along bases of apical cells 1, 2, and 3. Posterior margin of male abdominal tergite 3 much wider than mesonotum.

DESCRIPTION

Head including eyes slightly narrower than mesonotum. Inner area of pronotum lighter than pronotal collar. Lateral pronotal collar not dentate. Posterior pronotal collar very narrow. Wings hyaline, with many infuscations on fore wing. Fore wing venation normal, with ulnar cells and apical cells not partitioned. Length between bifurcation point into M vein and M1+2 vein and bifurcation point into M vein and M3+4 vein of fore wing less than twice the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line viewable on fore wing ulnar cell 3 and medial cell. Hind wing without infuscation along bases of



FIG. 2. — *Masamia huweii* n. gen., n. sp., holotype, male, Tibet: **A**, dorsal habitus, body length, 34.2 mm; **B**, ventral habitus, body length, 34.2 mm; **C**, ventral view of the pygofer; **D**, lateral view of the pygofer. Scale bar: C, D, 1 mm.

apical cells 1, 2, and 3. Male operculum very small, slightly longer than wide, not extending beyond posterior margin of sternite II. Male abdomen cylindrical, much longer than head and thorax together. Posterior margin of male abdominal tergite 3 much wider than mesonotum. Timbal cover short, much wider than long. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Male pygofer elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, short. Basal lobes of pygofer absent. Aedeagus thick.

Masamia huweii n. sp.
(Fig. 2)

TYPE MATERIAL. — **Holotype**: 1 ♂, “TIBETSE- Motuo Co ShangChayu, Ciba 2500m 2-3 July 2012” (printed white label).

Paratypes: 3 ♂♂, “TIBET-SE-Motuo Co ShangChayu; 2500m 2-3July2012 leg. H.Wei” (printed white labels); 1 ♀, “TIBETSE- Motuo Co 80Km Bomi; 2230m 2-8July2012 leg. H.Wei” (printed white label).

ETYMOLOGY. — The species is named for Hu Wei who collected the specimens used in this paper.

MEASUREMENTS (N = 4 MALES AND 1 FEMALE). — Median length of body: male 34.2 (32.8–35.6), female 25.2. Median length of head and thorax together: male 12.7 (12.4–12.9), female 10.7. Median length of abdomen: male 21.5 (21.1–23.1), female 14.5. Width of head including eyes: male 7.5 (7.4–7.6), female 7.0. Width of mesonotum: male 7.8 (7.7–7.8), female 6.8. Width of posterior margin of abdominal tergite 3: male 11.0 (10.8–11.3), female 9.8. Length of fore wing: 40.3 (38.6–41.6), female 39.8. Width of fore wing: 12.3 (12.2–12.4), female 12.2. Wing span: 91.0 (89.6–93.8), female 88.2.

DESCRIPTION OF MALE

Head

Head including eyes slightly narrower than mesonotum; greenish brown with a large median black to fuscous spot broadly enclosing ocelli, not reaching frontoclypeal suture or posterior margin of head, and a pair of large fuscous patch between the median spot and eye, extending over supra-antennal plates. Gena dull green with a large but indistinct fuscous spot between eye and postclypeus. Postclypeus moderately swollen; dull green with fuscous to dark brown fasciae along transverse grooves, of which medial ends are mostly connected to each other, and large postero-median dark brown patch. Anteclypeus dull green with large fuscous patch on each side. Rostrum ochraceous, but black apically; with tip slightly passing posterior margin of hind coxae.

Thorax

Pronotum dark brown. Inner area of pronotum with the following black to fuscous marks: a pair of central longitudinal fasciae, with their anterior and posterior ends widened laterad; a fascia along margin of inner area, irregular in thickness. Pronotal collar with black to fuscous margin and a pair of fuscous patches on each posterolateral corner. Lateral pronotal collar not dentate but waved. Mesonotum mostly fuscous with curved dull green fascia surrounding each submedian sigilla and a pair of postero-sublateral triangular dull green spots. Cruciform elevation dull green, with black anterior subapical parts and brown posterior parts. Thoracic sternites ochraceous.

Wings

Wings hyaline and tinged with green. Fore wing with infuscation on bases of apical cells and vein parts

around nodal line intersection. Inverted triangular infuscation present on each hind margin of radius anterior 2 (RA2), RP, median 1–4 (M1–4), cubitus anterior 1 (CuA1), and cubitus anterior 2 (CuA2) vein. Nodal line viewable on fore wing ulnar cell 3 and medial cell. Venation dark brown except for ochraceous apical part. Basal cell pale ochraceous. Basal membrane and hind wing jugum grayish ochraceous. Hind wing with indistinct infuscation on bases of apical cells 4 and 5.

Operculum

Operculum ochraceous; about as long as wide, nearly rectangular with edges rounded, but lateral side elongated anteriorly; scarcely extending beyond posterior margin of sternite II. Two opercula apart from each other, with gap of about width of operculum. Meracanthus ochraceous.

Abdomen

Abdomen cylindrical, about 1.8571 times (1.60–1.85; n = 14) as long as head and thorax together; brown with very narrowly fuscous posterior margin of tergite 2. Tergite 8 thickly covered with white pollinosity. Posterior margin of tergite 3 much wider than mesonotum. Timbal cover short, semi-oval, much wider than long, revealing timbal in dorsal view. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Abdominal sternites ochraceous, densely covered with white pollinosity.

Genitalia

Pygofer elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, short, standing at about 50 degree to pygofer in lateral view. Basal lobes of pygofer absent. Aedeagus thick, with lower end partly expanded.

Manna n. gen.

TYPE SPECIES. — *Manna tenuis* n. sp., by present designation.

ETYMOLOGY. — The generic name is the Latin feminine noun *manna* meaning “food from God for wandering Hebrews” which does not seem to be actually related to

this genus but insinuates that this genus is allied to the genus *Tanna* by rhyme.

DIAGNOSIS. — Fore wing ulnar cells and apical cells not partitioned. Length between bifurcation point into M vein and M1+2 vein and bifurcation point into M vein and M3+4 vein of fore wing 2.5 to 3 times the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line indistinct or absent on fore wing ulnar cell 3 and medial cell. Hind wing with infuscation along bases of apical cells 1, 2, and 3, forming a zigzag mark. Posterior margin of male abdominal tergite 3 slightly wider than mesonotum.

DESCRIPTION

Head including eyes narrower than mesonotum. Inner area of pronotum concolorous with pronotal collar. Lateral pronotal collar not dentate. Posterior pronotal collar very narrow. Wings hyaline, with many infuscations on fore wing. Fore wing venation normal, with ulnar cells and apical cells not partitioned. Length between bifurcation point into M vein and M1+2 vein and bifurcation point into M vein and M3+4 vein of fore wing 2.5 to 3 times the length between bifurcation point into M vein and M3+4 vein and base of M vein. Nodal line indistinct or absent on fore wing ulnar cell 3 and medial cell. Hind wing with distinct infuscation along bases of apical cells 1, 2, and 3, forming a zigzag mark. Male operculum very small, slightly longer than wide, very slightly extending beyond posterior margin of sternite II. Male abdomen cylindrical, longer than head and thorax together. Posterior margin of male abdominal tergite 3 slightly wider than mesonotum. Timbal cover short, wider than long. Male abdominal sternite III with tubercle-like projection on each centrolateral surface. Male pygofer elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, moderately long. Basal lobes of pygofer absent. Aedeagus moderately thick.

Manna tenuis n. sp.

(Fig. 3)

TYPE MATERIAL. — **Holotype:** 1 ♂, “TIBETSE-Motuo Co 108Km Bomi; 900m 2-8July2012” (printed white label). **Paratypes:** 1 ♂, same data as holotype (printed white label); 1 ♂, 2 ♀♀, “TIBETSE-Motuo Co ShangChayu, Ciba 2500m

2-3 July 2012” (printed white label); 6 ♀♀, “TIBETSE-Motuo Co 80Km Bomi; 2230m 2-8July2012” (printed white label); 1 ♀, “INDIEN Arunachal Pradesh Dist. Along Near Rapum 06.-12.07.2010-2000Hm. N.28.53.176°/E.094.24.941° leg. Bretschneider” (printed white label).

ETYMOLOGY. — The specific name is the Latin adjective meaning “thin”, “slim”, or “slender” in reference to the slender male abdomen of this species.

MEASUREMENTS (N = 3 MALES AND 9 FEMALES). — Median length of body: male 25.5 (24.5-26.1), female 24.2 (23.4-24.5). Median length of head and thorax together: male 11.7 (11.5-11.9), female 12.0 (11.8-12.3). Median length of abdomen: male 13.8 (13.5-14.1), female 12.2 (11.8-12.6). Width of head including eyes: male 7.0 (6.8-7.2), female 6.8 (6.7-7.0). Width of mesonotum: male 7.2 (7.1-7.3), female 8.1 (7.9-8.2). Width of posterior margin of abdominal tergite 3: male 7.9 (7.8-8.0), female 9.3 (9.1-9.4). Length of fore wing: male 32.6 (32.4-32.8), female 37.5 (36.8-38.2). Width of fore wing: male 10.4 (all 10.4), female 11.5 (11.4-11.7). Wing span: male 74.6 (74.2-75.0), female 83.2 (82.6-83.8).

DESCRIPTION OF MALE

Head

Head including eyes narrower than mesonotum; green with the following black marks: T-like median mark, connecting ocelli, not reaching frontoclypeal suture or posterior margin of head; spot on each supra-antennal plate; crescent moon-like spot between the median mark and eye. Gena black. Postclypeus moderately swollen; dull green but transverse ridges and anterolateral parts fuscous. Anteclypeus dull green with large black patch on each side. Rostrum ochraceous to brown, but black apically; with tip not reaching posterior margin of hind coxae.

Thorax

Thorax green to dull green. Inner area of pronotum with irregular black patches except for median area. Pronotal collar with a pair of large lateral black patches and a pair of much smaller postero-sublateral black spots. Lateral pronotal collar not dentate but waved. Mesonotum with the following black marks: large triangular postero-median spot, reaching anterior margin of cruciform elevation and enclosing scutal depressions; inverted triangular spot on posterior half of each submedian sigilla; a pair of transversely arranged small spots on anterior end of each lateral sigilla; a pair of large spots on

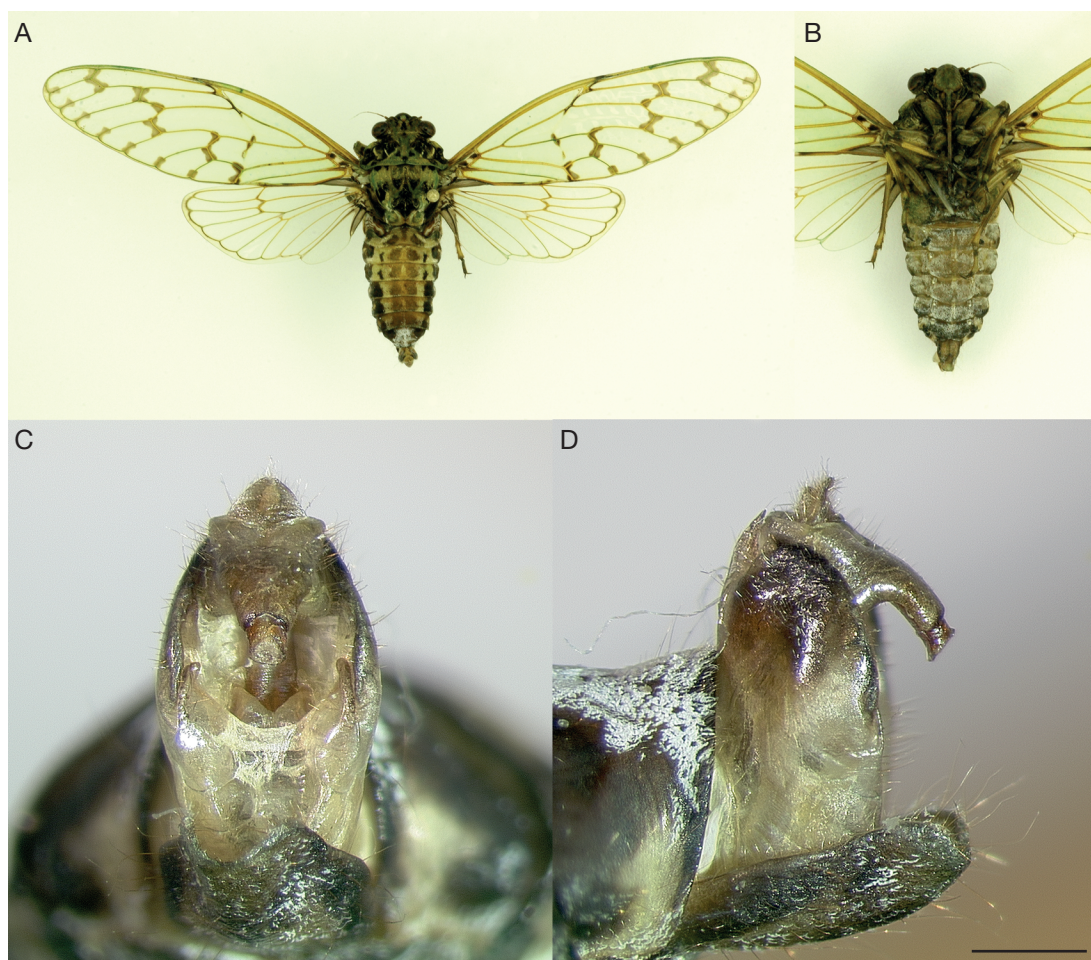


FIG. 3. — *Manna tenuis* n. gen., n. sp., holotype, male, Tibet: **A**, dorsal habitus, body length, 25.5 mm; **B**, ventral habitus, body length, 25.5 mm; **C**, ventral view of the pygofer; **D**, lateral view of the pygofer. Scale bar: C, D, 1 mm.

posterolateral corners of mesonotum. Cruciform elevation green but brown medially, with anterior subapical parts black. Thoracic sternites mostly black with some ochraceous or green parts.

Wings

Wings hyaline and tinged with green. Fore wing with infuscation on bases of apical cells and slightly on vein parts around nodal line intersection. Rectangular infuscation present on each hind margin of RA2, RP, M1-4, CuA1, and CuA2 vein. Venation ochraceous but green apically. Basal cell with two fuscous spots.

Basal membrane and hind wing jugum gray. Hind wing with infuscation along bases of apical cells 1, 2, and 3, forming a zigzag mark; with indistinct infuscation on bases of apical cells 4 and 5.

Operculum

Operculum green to ochraceous with fuscous medial margin; about as long as wide, nearly smicircular, but lateral side elongated anteriorly; very slightly extending beyond posterior margin of sternite II. Two opercula apart from each other, with gap of about width of operculum.

Abdomen

Abdomen cylindrical, about 1.2520 times (1.17–1.25; $n = 13$) as long as head and thorax together; ochraceous to brown with a pair of longitudinal broad patches along lateral sides of abdomen and a pair of small sublateral fuscous spots each on tergites 3 and 4. Tergite 8 covered with white pollinosity medially. Posterior margin of tergite 3 slightly wider than mesonotum. Timbal cover short, semi-oval, wider than long, revealing timbal in dorsal view. Male abdominal sternite III with obliquely protruding tubercle-like projection on each centrolateral surface. Abdominal sternites ochraceous to brown, densely covered with white pollinosity.

Genitalia

Pygofer elliptical in ventral view. Distal shoulder not pointed. Uncus not bifurcate, curved inward in lateral view. Basal lobes of pygofer absent. Aedeagus thick, simple.

DESCRIPTION OF FEMALE

Ovipositor sheath not protruding beyond abdominal segment 9. Dorsal beak longer than anal styles.

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